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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/560,911	12/16/2005	Heinz Haiser	R.306015	6087
2119 7590 12/13/2007 RONALD E. GREIGG GREIGG & GREIGG P.L.L.C. 1423 POWHATAN STREET, UNIT ONE ALEXANDRIA, VA 22314			EXAMINER COLEMAN, KEITH A	
			ART UNIT	PAPER NUMBER
			4175	
			MAIL DATE	DELIVERY MODE
			12/13/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/560,911

Applicant(s)

HAISER ET AL.

Examiner

KEITH A. COLEMAN

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13-24 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 13-24 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-893)
Paper No(s)/Mail Date 12/16/2005
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: ____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 13, 14, and 22-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Bessiere (US Patent No. 2,947,258).

With regards to claim 13, the patent to Bessiere discloses in a connection point (11, Col. 4, Line 10) of a chamber (6, Col. 3, Line 60) subjected to high pressure in a body (i.e. fuel injection pump, See Figure 1 and Col. 1, Lines 50-52) subjected to high pressure of a high-pressure injection system for fuel (via delivery conduit 9, Col. 2, Line 21) at a bore (opening 6a connected to conduit 23 and conduit 11), extending through the body (i.e. fuel injection pump, via conduit 23 and 11), which extends substantially vertically in the body (See Figure 1), the improvement comprising an encompassing groove (step near 6a) in the chamber (6) subjected to high pressure of the body (See Figure 1), the bore (opening 6a connected to 23 and 11) discharging into the encompassing groove (step near 6a, See Col. 3, Lines 54-65) forming an intersection point (6a, See Figure 1).

With regards to claim 14, the patent to Bessiere discloses wherein the encompassing groove (step near 6a, See Figure 1) is preferably disposed in the bottom region of the chamber (6) subjected to high pressure (See Figure 1).

With regards to claim 22, the patent to Bessiere discloses the intersection of a differential pressure chamber (6), controlling a pressure amplifier (throttle valve 12, Col. 2, Lines 42-62), and a control line (11) in the form of a bore (opening 6a connected to 23 and 11) that subjects the differential pressure chamber (6) to pressure.

With regards to claim 23, the patent to Bessiere discloses wherein the control line (11) is embodied as a through bore (opening 6a connected to 23 and 11) in the high-pressure-carrying body.

With regards to claim 24, the patent to Bessiere discloses at least one further bore (chamber 6a) connected bound to the encompassing groove (step of 6a) in the high-pressure-carrying body (See Figure 1).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 15-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bessiere (US Patent No. 2,947,258).

With regards to claim 17, the patent to Bessiere discloses wherein the encompassing groove (step near 6a, See Figure 1) is embodied with a curved contour at a constant depth in the body (See Figure 1). Since Bessiere discloses that a cylinder is used, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the chamber 6 of Bessiere with the step is circular or

curved contour in shape in order to create a seal that contours to the piston (5), in order to create a seal that contours to the cylindrical shape of the piston (5).

With regards to claim 18, the patent to Bessiere discloses all the limitations of the claimed subject matter including positively disclosing wherein a pocket is embodied in the wall in the body that defines the chamber (6) subjected to high pressure (See Figure 1), except positively disclosing the pocket is cylindrical in shape and is embodied as curved in the wall in the body. Since Bessiere discloses that a cylinder is used, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the chamber 6 of Bessiere with the pocket is cylindrical in shape and is embodied as curved in the wall in the body, in order to create a seal that contours to the cylindrical shape of the piston (5).

With regards to claim 19, the patent to Bessiere discloses wherein the cylindrically shaped pocket (See Rejection in Claims 18 and 19) has its maximum depth at the orifice of the bore (opening 6a connected to 23 and 11).

With regards to claim 20, the patent to Bessiere discloses wherein the cylindrically shaped pocket (See Rejection in Claims 18 and 19), on both sides of the orifice of the bore, the pocket has symmetrical ending regions into the bore (opening 6a connected to 23 and 11). Since the step region near 6a is on both sides of chamber 6

and appears symmetrical, it is deemed that the pocket has symmetrical ending regions into the bore.

With regards to claim 21, the patent to Bessiere discloses wherein the connection point (where chamber 6 connects to conduit 23 and 11) is embodied, depending on the shape of the groove (i.e. step 6a), as an opening of rectangular geometry. From the cross-sectional view in Figure 1, it appears that the conduits 11 and 23 are of a rectangular structure and are deemed as a connection point of rectangular geometry.

With regards to claim 15, the patent to Bessiere discloses wherein the cylindrically shaped pocket (i.e. step near 6a, See Rejection in Claims 19 and 18), with the chamber (6) subjected to high pressure, forms an intersection that is free of excessively elevated stress. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the intersection of Bessiere with an intersection that is free of excessively elevated stress, in order to optimize structural integrity and prevent permanent deformation.

With regards to claim 16, the patent to Bessiere discloses wherein the intersection point acts as a notch effect point, at which reduced stress levels ($Y_{max.2}$, $a_{max.3}$) are established in operation of the body subjected to high pressure. It would have been obvious to a person of ordinary skill in the art at the time the invention was

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made to modify the intersection of Bessiere with reduced stress levels ($Y_{max.2}$, $a_{max.3}$) that are established in operation of the body subjected to high pressure, in order to optimize structural integrity and prevent permanent deformation.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Pearce (US Patent No. 4,700,680) shows the current state of the art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KEITH A. COLEMAN whose telephone number is (571)270-3516. The examiner can normally be reached on Monday through Friday between 5:30-3 Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrence Till can be reached on (571) 272-1280. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Terrence R Till/
Supervisory Patent Examiner, Art Unit 4175

KAC
/K. A. C./
Examiner, Art Unit 4175